

IN THE CLAIMS:

Please re-write the claims to read as follows:

1 1. (Currently Amended): In an Asynchronous Transfer Mode (ATM) system
2 composed of at least a first data network (10) having a plurality of switching nodes in-
3 terconnected by connection lines and including end switching nodes each being con-
4 nected to at least a Data Transmission equipment (DTE) and being used either as an entry
5 border node (22) when it is connected to a source DTE (18) or an exit border node (28)
6 when it is connected to a destination DTE (20), said network using a routing protocol of
7 the type wherein a best route between a source DTE and a destination DTE is determined
8 in a control point associated with said entry border node to which is connected said
9 source DTE and wherein a set-up message is sent by said entry border node, and a second
10 data network (12) including at least one DTE to be used as destination DTE in an ex-
11 change of data with a source DTE connected to said first data network and being inter-
12 connected with said first data network by means of at least two links (14, 16) not support-
13 ing said routing protocol, the at least two links not supporting said routing protocol con-
14 necting a switching node of the first data network with a switching node of the second
15 data network;

16 method for extending the crankback procedure over all said system comprising:

17 when the exit border node of said first data network receives a clearing message
18 on one of said links indicating that said set-up message has been rejected because said
19 best route is blocked anywhere in said second data network, in building a crankback in-
20 formation element to be added to said clearing message, the clearing message transmitted

21 from a switching node of the second data network to a switching node of the first data
22 network over one of the at least two links not supporting said routing protocol, said
23 crankback information element and said clearing message for enabling said entry border
24 node to find an alternate route avoiding the portion of said best route which is blocked.

1 2. (Original): The method according to claim 1, wherein said crankback information
2 element includes a blocked transit type which can be “preceding”, “node” or “succeed-
3 ing”, a blocked transit identifier depending on said blocked transit type and a crankback
4 cause.

1 3. (Original): The method according to claim 2, wherein said blocked transit type is
2 “preceding” and said blocked transit identifier identifies the node preceding the link not
3 supporting said routing protocol as being blocked.

1 4. (Original): The method according to claim 1, 2 or 3, wherein said links not supporting
2 said routing protocol are Interim Inter switch Protocol (IISP) links.

1 5. (Original): The method according to claim 1, 2 or 3, wherein said links not supporting
2 said routing protocol are UNI links.

1 6. (Currently Amended): Asynchronous Transfer Mode (ATM) system composed of at
2 least a first data network (10) having, a plurality of switching nodes interconnected by
3 connection lines and including end switching nodes each being connected to at least a
4 Data Transmission equipment (DTE) and being used either as an entry border node (22)
5 when it is connected to a source DTE (18) or an exit border node (28) when it is con-
6 nected to a destination DTE (20), said network using a routing protocol of the type

7 wherein a best route between a source DTE and a destination DTE is determined in a
8 control point associated with said entry border node to which is connected said source
9 DTE and wherein a set-up message is sent by said entry border node, and a second data
10 network (12) including at least one DTE to be used as destination DTE in an exchange of
11 data with a source DTE connected to said first data network and being interconnected
12 with said first data network by means of at least two links (14, 16) not supporting said
13 routing protocol, the at least two links not supporting said routing protocol connecting a
14 switching node of the first data network with a switching node of the second data net-
15 work; said system further comprising:

16 means for extending the crankback procedure over all said system in building,
17 when the exit border node of said first data network receives a clearing message on one
18 of said links indicating that said set-up message has been rejected because said best route
19 is blocked anywhere in said second data network, a crankback information element to be
20 added to said clearing message, the clearing message transmitted from a switching node
21 of the second data network to a switching node of the first data network over one of the at
22 least two links not supporting said routing protocol, said crankback information element
23 and said clearing message for enabling said entry border node to find an alternate route
24 avoiding the portion of said best route which is blocked.

1 7. (Original): The system according to claim 6, wherein said crankback information
2 element includes a blocked transit type which can be “preceding”, “node” or “succeed-
3 ing”, a blocked transit identifier depending on said blocked transit type and a crankback
4 cause.

1 8. (Original): The system according to claim 7, wherein said blocked transit type is
2 “preceding” and said blocked transit identifier identifies the node preceding the link not
3 supporting said routing protocol as being blocked.

1 9. (Original): The system according to claim 6, 7 or 8, wherein said links not supporting
2 said routing protocol are Interim Inter switch Protocol (IISP) links.

1 10. (Original): The system according to claim 6, 7 or 8, wherein said links not support-
2 ing said routing protocol are UNI links.

1 11. (Currently Amended): For use in a system having a first network and a second net-
2 work, said first network having at least one entry border node connected to a source node,
3 said first network adhering to a routing protocol which includes the use of a crankback
4 procedure to inform the entry border node of a path failure within the first network, said
5 second network having at least one exit border node connected to a destination node, said
6 second network including at least some elements which do not use a crankback proce-
7 dure, said first and second networks being interconnected through a plurality of links
8 connecting a plurality of border nodes within each network, the plurality of links not sup-
9 porting said routing protocol connecting at least one switching node of the first data net-
10 work with at least one switching node of the second data network, a method of extending
11 the crankback procedure to cover path failures in said second network, said method being
12 implemented in a border node in said first network on a proposed path between the
13 source node and the destination node and comprising the steps of:

14 monitoring messages returned from the second network relating to the proposed
15 path for a clearing message indicative of a failure in the proposed path anywhere in the
16 second network;

17 in response to detection of said clearing message, generating a crankback infor-
18 mation element;

19 modifying said clearing message by adding said generated crankback information
20 element; [[and]]

21 transmitting the modified clearing message from a switching node of the second
22 data network to a switching node of the first data network over one of the plurality of
23 links not supporting said routing protocol; and
24 forwarding said modified clearing message to the entry border node.

1 12. (Original): The method according to claim 11 wherein said crankback information
2 element includes a blocked transit type field, a blocked transit identifier field and a
3 crankback cause field.

1 13. (Currently Amended): A method for use in an exit border node in a first network of
2 a system having a first and second network using a best-route routing protocol intercon-
3 nected by at least two links not supporting said protocol, the at least two links not sup-
4 porting the routing protocol connecting a switching node serving as a border node of the
5 first network to a switching node serving as a border node of the second computer net-
6 work, said exit border node being connected to one of said at least two links, said first
7 network having an entry border node to determine a best route, said method comprising:
8 receiving a clearing message from said second network indicating a rejection of
9 said best route;
10 generating a crankback information element in response to said clearing message;
11 adding said crankback information element to said clearing message; and
12 forwarding said clearing message and crankback information element to said en-
13 try border node by transmitting the clearing message with the crankback information
14 from a switching node serving as a border node of the second data network to a switching
15 node serving as a border node of the first data network over one of the plurality of links
16 not supporting said routing protocol.

1 14. (Previously presented): The method of claim 13, further comprising: wherein said at
2 least two links are Interim Inter Switch Protocol (IISP) links.

1 15. (Previously presented): The method of claim 13, further comprising: wherein said at
2 least two links are User-Network-Interface (UNI) links.

1 16. (Previously presented): The method of claim 13, further comprising: wherein said
2 system is an Asynchronous Transfer Mode (ATM) system.

1 17. (Previously presented): The method of claim 13, further comprising: wherein said a
2 best-route routing protocol is a Private Network Interface (PNNI) protocol.

1 18. (Previously presented): The method of claim 13, further comprising: wherein said
2 crankback information element includes a blocked transit type field, a blocked transit
3 identifier field, and a crankback cause field.

1 19. (Currently Amended): An exit border node in a first network of a system having a
2 first and second network using a best-route routing protocol interconnected by at least
3 two links not supporting said protocol, the at least two links not supporting the routing
4 protocol connecting a switching node serving as a border node of the first network to a
5 switching node serving as a border node of the second computer network, said exit bor-
6 der node being connected to one of said at least two links, said first network having an
7 entry border node to determine a best route, said exit border node comprising:
8 means for receiving a clearing message from said second network indicating a re-
9 jection of said best route;

10 means for generating a crankback information element in response to said clear-
11 ing message;

12 means for adding said crankback information element to said clearing message;
13 and

14 means for forwarding said clearing message and crankback information element
15 to said entry border node by transmitting the clearing message with the crankback infor-
16 mation from a switching node serving as a border node of the second data network to a
17 switching node serving as a border node of the first data network over one of the plurality
18 of links not supporting said routing protocol.

19
1 20. (Currently Amended): A system, comprising:

2 a first network using a best-route routing protocol;

3 at least two links not supporting said protocol connected to at least one switching
4 node in said first network;

5 a second network using a best-route routing protocol, said second network inter-
6 connected with said first network by said at least two links, said at least two links con-
7 nected to a switching node of said second network;

8 an entry border node in said first network to send a set-up message having a best
9 route from said first network to said second network; and

10 [[an exit]] a first border node in said first network connected to one of said at
11 least two links, a second border node in said second network connected to said first bor-
12 der node by said one of said at least two links, said [[exit]] second border node to receive
13 a clearing message from said second network indicating a rejection of said best route, to
14 generate a crankback information element in response to said clearing message, add said
15 crankback information element to said clearing message, and forward said clearing mes-

16 sage and crankback information element along said one of said at least two links to said
17 first ~~[[entry]]~~ border node by said one of said at least two links.

1 21. (Previously presented): The system of claim 20, further comprising: wherein said at
2 least two links are Interim Inter Switch Protocol (IISP) links.

1 22. (Previously presented): The system of claim 20, further comprising: wherein said at
2 least two links are User-Network-Interface (UNI) links.

1 23. (Previously presented): The system of claim 20, further comprising: wherein said
2 system is an Asynchronous Transfer Mode (ATM) system.

1 24. (Currently Amended): The system of claim 20, further comprising: wherein said a
2 best-route routing protocol is a Private Network ~~[[Network]]~~ Interface (PNNI) protocol.

1 25. (Previously presented): The system of claim 20, further comprising: wherein said
2 crankback information element includes a blocked transit type field, a blocked transit
3 identifier field, and a crankback cause field.

1 26. (Currently Amended): In a system having a first and second network using a best-
2 route routing protocol interconnected by at least two links not supporting said protocol, a
3 method comprising:

4 sending a set-up message from ~~[[an entry]]~~ a first border node of said first net-
5 work to a second border node of said second network over one of said at least two links,
6 said set-up message having a best route;

7 receiving a clearing message at [[an exit]] said second border node of said
8 [[first]] second network from said second network indicating a rejection of said best
9 route;

10 generating, at said [[exit]] second border node, a crankback information element
11 in response to said clearing message;

12 adding said crankback information element to said clearing message;

13 forwarding said clearing message and crankback information element from said
14 [[exit]] second border node to said [[entry]] first border node in said first network, said
15 forwarding over said one of said at least two links; and

16 determining, [[at said entry border node]] in said first network, an alternate route
17 over another of said at least two links, thereby avoiding said rejected portion of said best
18 route.

1 27. (Previously presented): A computer readable media, comprising: said computer
2 readable media containing instructions for execution in a processor for the practice of the
3 method of claim 1, or claim 11, or claim 13, or claim 26

1 28. (Previously presented): Electromagnetic signals propagating on a computer network,
2 comprising: said electromagnetic signals carrying instructions for execution on a proces-
3 sor for the practice of the method of claim 1, or claim 11, or claim 13, or claim 26.

Please add new claims as follows:

- 1 29. (New) A system comprising:
- 2 a first computer network and a second computer network, said first computer net-
- 3 work and said second computer network each supporting a routing protocol;
- 4 a first border node in the first computer network connected to source data trans-
- 5 mission equipment (DTE), the first border node determining a best path to a destination
- 6 DTE, the destination DTE located in the second computer network;
- 7 a second border node in the first computer network connected by the first com-
- 8 puter network to the first border node;
- 9 a third border node in the second computer network connected to the second bor-
- 10 der node by a link, the link not capable of supporting the routing protocol;
- 11 a fourth border node in the second computer network connected to said destina-
- 12 tion DTE, said fourth border node connected to the third border node by the second com-
- 13 puter network;
- 14 the third border node receiving a clearing message from said second computer
- 15 network indicating a rejection of said best route, the third border node generating a crank-
- 16 back information element in response to receiving said clearing message, the third border
- 17 node adding said crankback information element to said clearing message, and said third

18 border node forwarding the clearing message with said crankback element to the second
19 border node through said link not capable of supporting the routing protocol;
20 the second border node generating a new clearing message in response to receiv-
21 ing the clearing message with the crankback element; and
22 the second border node sending the new clearing message to the first border node,
23 so that the first border node can find a new best path to the destination DTE.

1 30. (New) A method for operating a system, comprising:
2 connecting the system as a first computer network and a second computer net-
3 work, said first computer network and said second computer network each supporting a
4 routing protocol;
5 connecting a source data transmission equipment (DTE) to a first border node in
6 the first computer network, the first border node determining a best path to a destination
7 DTE, the destination DTE located in the second computer network;
8 connecting a second border node, in the first computer network, by the first com-
9 puter network to the first border node;
10 connecting a third border node in the second computer network to the second bor-
11 der node by a link, the link not capable of supporting the routing protocol;

12 connecting the destination DTE to a fourth border node in the second computer
13 network, said fourth border node connected to the third border node by the second com-
14 puter network;

15 receiving a clearing message by the third border node from said second computer
16 network indicating a rejection of said best route, the third border node generating a
17 crankback information element in response to receiving said clearing message, the third
18 border node adding said crankback information element to said clearing message, and
19 said third border node forwarding the clearing message with said crankback element to
20 the second border node through said link not capable of supporting the routing protocol;

21 generating a new clearing message by the second border node in response to re-
22 ceiving the clearing message with the crankback element; and

23 sending the new clearing message by the second border node to the first border
24 node, so that the first border node can find a new best path to the destination DTE.

1 31. (New) A switching node, comprising:

2 said switching node having a network connection into a first computer network, a
3 second node in said first computer network sending a set-up message for a best route to
4 said switching node, said best route from source data transmission equipment (DTE)
5 connected to said second switching node to destination DTE located in a second com-
6 puter network;

7 said switching node connected by a link not supporting a router protocol to a third
8 switching node, said third switching node located in said second computer network, said
9 link transferring said set-up message to said third switching node, said third switching
10 node receiving a clearing message that said set-up message has been rejected because
11 said best route is blocked anywhere in said second data network, said third switching
12 node transferring said clearing message along with a crankback information to said
13 switching node through said link not supporting a routing protocol;

14 said switching node receiving said clearing message and crankback information
15 from said link not supporting a router protocol, and in response to receiving said clearing
16 message and crankback information, generating a second clearing message, and transmit-
17 ting said second clearing message to said second switching node so that said second
18 switching node can find a second best route.

1 32. (New) A method for operating a switching node, comprising:

2

3 receiving set-up message for a best route through a network connection into a first
4 computer network, a second node in said first computer network sending said set-up mes-
5 sage for a best route to said switching node, said best route from source data transmission
6 equipment (DTE) connected to said second switching node to destination DTE located in
7 a second computer network;

8 transferring said set-up message to a link not supporting a router protocol to a
9 third switching node, said third switching node located in said second computer network,
10 said link transferring said set-up message to said third switching node, said third switch-
11 ing node receiving a clearing message that said set-up message has been rejected because
12 said best route is blocked anywhere in said second data network, said third switching
13 node transferring said clearing message along with a crankback information to said
14 switching node through said link not supporting a routing protocol;

15 receiving said clearing message and crankback information by said switching
16 node from said link not supporting a router protocol, and in response to receiving said
17 clearing message and crankback information, generating a second clearing message, and
18 transmitting said second clearing message to said second switching node so that said sec-
19 ond switching node can find a second best route.